REMARKS

Claims 15-26 are pending in the application. Claim 15 is an independent claim.

Claims 15-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Claims 16-26 depend from claim 15. Claims 16-26 have been amended to replace "An" with -The- for clarity. No new matter is added by virtue of the amendments.

The rejection further proffers that claim 15 is vague because it is unclear what reagents, if any, are in the detection zone that would enable it to detect the analyte. That proffer is respectfully traversed.

Claim 15 does not recite reagents in the detection zone, because no reagents beyond those already recited in the claim for detecting the analyte are required. Claim 15 specifically recites a conjugate comprising a first bioaffine binding partner capable of a specific binding reaction with the analyte to be determined and a first detectable label and a universal conjugate that comprises a second bioaffine binding partner and a second detectable label, the second bioaffine binding partner is capable of a specific binding reaction with the first detectable label, wherein the second detectable label is a direct visually detectable label. As both conjugates can be detached from the matrix material by liquid, the analyte to be determined is conjugated with a visually detectable label when it reaches the detection zone. Support for claim 15 is provided at page 4, lines 1-14 of the specification as filed, where it is taught that the detection complex is formed before transport to the detection zone.

To further clarify this point, claim 15 is amended to recite that the direct visually detectable label is formed to carry out the determination of the analyte in the detection zone. Support for the amendment is found in the specification at page 10, lines 6-28. No new matter is added by virtue of the amendment to the claims.

The claims are believed to be sufficiently definite for purposes of 35 U.S.C. 112, second paragraph. Accordingly, reconsideration of the rejection leading to its withdrawal is respectfully requested.

Claims 15-17 and 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzpatrick et al (US 5,451,504) in view of Decker et al. (US 4,230,683). The rejection proffers that it would have been obvious . . . to modify the device of Fitzpatrick et al. by using the hapten-labeled method of Decker et al. The rejection is respectfully traversed for the reasons set forth below:

1. The Examiner stated at page 6 beginning at line 5 of the Action mailed October 15, 2003, that "Applicant argues that the instant invention differs from the device taught by Fitzpatrick because . . . Fitzpatrick teaches non-visible detectable labels such as enzymes and fluorphores, etc.". It is respectfully submitted that it appears that the Examiner may have misunderstood Applicants' argument.

In the Reply mailed August 28, 2003, the Examiner's attention was specifically directed to the list of suitable detectable labels at Column 8 lines 33-38 of Fitzpatrick et al., several of which have intrinsic color such as dyes, colloidal gold, and latex particles. This list of suitable labels is important, as it is devoid or suggestion of a first conjugate that binds analyte of the present invention, which has a low molecular organic molecule as its label.

Fitzpatrick et al.'s teaching of a direct label - not requiring a secondary reaction or instrument for detection (Column 4 lines 32-33) was not followed by Applicants. Specifically, it was recognized and taught in the specification at page 2, second paragraph, that when direct labels are used with a bioaffine binding partner that varies according to the analyte, optimal conditions have to be created on the analytical element for reaction and storage. This individual adaptation to the analyte to be determined is very laborious. Difficulties include stability and varying spatial arrangements that can lead to steric problems when such conjugates are reacted with the analyte and can thus result in poor sensitivity.

The present invention overcomes these disadvantages by providing an element that comprises two bioaffine binding partners. The partner that is capable of a specific binding reaction with the analyte to be determined is part of a conjugate with a low molecular organic molecule detectable label. This type of conjugate is neither disclosed nor suggested by Fitzpatrick et al. Again, Fitzpatrick et al. (Column 4 lines

33-34 and Column 8 lines 38-41) not only fails to teach the element of the present claims, but instead leads one skilled in the art away from it. Again, at most, Fitzpatrick et al. discloses a device with a mobilizeable receptor capable of binding an analyte, wherein a receptor-analyte complex is detected by observing a signal from a label attached to the receptor.

2. The Examiner stated at page 6 beginning at line 11 of the Action mailed October 15, 2003, that "Fitzpatrick does teach that the choice of detection means can be made on the basis of convenience of the practitioner. Various detection means known in the art fall with in the scope of the invention taught by Fitzpatrick (column 8, lines 54-57). Decker is cited for the disclosure of a universal detection system." It is respectfully submitted that, method of Decker either alone or in combination with Fitzpatrick et al. fails to disclose or suggest the element of claim 15.

At most, Decker teaches the use of a two-conjugate-system to multiply the antigenic reactivity of a sandwich assay with bound analyte. Specifically, the method includes reacting the antigen or antibody bound to the solid support with a hapten conjugated antibody to the antigen or antibody to be detected to provide hapten conjugated antibody bound to the solid support, reacting hapten conjugated antibody bound to the solid support with labeled anti-hapten antibody, and measuring the labeled hapten antibody bound to the solid support. (Column 2 lines 4-14).

Further, Decker teaches that, "each hapten conjugated antibody will have several hapten molecules bound thereto providing for multiplication of the antigenic reactivity" (column 2 lines 61-63). This means that each first conjugate which binds to the antigen or antibody must contain a plurality of hapten moieties to bind to a plurality of second labeled conjugates. A further amplification can be achieved by using a second conjugate, which contains a plurality of labels per conjugate.

The aim, however, of the present invention is not to multiply the antigenic reactivity in a specific immunological reaction, but to provide an element that allows the detection of an analyte with a stable and reproducibly producible reagents without elaborate and expensive optimization steps. Therefore, an amplification or

multiplication function of the two conjugates is not necessary in an element of the present invention.

The use of two different conjugates in the present invention is based on a functional task sharing: the first conjugate is specialized and optimized to bind to the analyte in a specific and sufficient manner, which preferably is not adversely affected by the small molecular organic molecule attached as a first detectable label. The second conjugate is specialized, reproducible and stable for detecting of the first conjugate and thus of the analyte. By this task sharing, it is possible to optimize only one conjugate for binding to the special analyte and to use a second universal conjugate for this first conjugate independent of the special analyte.

Thus, the combination of Fitzpatrick et al. and Decker is non-obvious because Decker teaches explicit the use of a two-conjugate-system to multiply the antigenic reactivity of a sandwich assay with bound analyte. Therefore, a person of ordinary skill in the art on the area of indirect competitive immunoassays has no hint to combine Decker with Fitzpatrick et al. to achieve the special and unexpected effects of the two-conjugate-system of the present invention.

The combination of Fitzpatrick et al. and Decker et al. cannot be motivated by hindsight in view of Applicants' specification. There is no motivation in the cited references to replace the Fitzpatrick et al.'s binding partner for the analyte that is labeled with a direct visually detectable label with the rather complex system of Decker et al., which does not encompass such direct visually detectable labels. It is submitted that the combination of the teachings of Fitzpatrick et al. and Decker et al. would lead to a system in which a binding partner for the analyte is labeled with a low molecular organic molecule that can be bound by another binding partner for this low molecular organic molecule that in turn carries a label that is not directly visually detectable. This is clearly not what is claimed in the presently amended claim 15.

Moreover, it is submitted that Decker et al. requires that its test sample be bound to a solid support. See, for example, Col. 1 lines 56-63, Col. 2 lines 4-10 and 59-66, and Col. 3 lines 28-32 where an assay for determining antigen or antibody from a test sample bound to a solid support is taught.

In light of the above, it is submitted that Fitzpatrick et al. and Decker et al. when taken as a whole, fail either alone or in combination to disclose or suggest an element comprising "a sample application zone, a detection zone . . . a zone containing immobilized analyte or analyte analogue . . . a material that enables liquid transport between the zones, a conjugate impregnated in a matrix material located upstream of the zone containing immobilized analyte or analyte analogue, the conjugate can be detached from the matrix material by liquid and comprises a first bioaffine binding partner capable of a specific binding reaction with the analyte to be determined and a first detectable label, wherein the first detectable label is a low molecular organic molecule, and a universal conjugate, located upstream of the zone containing immobilized analyte or analyte analogue, which can be detached by liquid and comprises a second bioaffine binding partner and a second detectable label, the second bioaffine binding partner is capable of a specific binding reaction with the first detectable label, wherein the second detectable label is a direct visually detectable label formed to carry out the determination of the analyte in the detection zone", as required by amended claim 15. Claims 16-17 and 20-23 depend from claim 15.

It is respectfully submitted that the differences between the claimed invention and the cited art are such that Applicant's invention as a whole would not have been obvious to one of ordinary skill in the art at the time the invention was made. It is respectfully contended that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection of the claims and withdrawal of the rejection is respectfully requested.

Claims 18, 19, and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fitzpatrick et al. in view of Decker et al. as applied to claims 15-17 and 20-23 above, and further in view of Bernstein et al (US 5,824,268). Fitzpatrick et al. and Decker et al. have been discussed above with reference to independent claim 15. As discussed above, it is submitted that neither Fitzpatrick et al. nor Decker et al. either alone or in combination with one another disclose or suggest the element of claim 15. Claims 18, 19 and 24-26 depend from independent claim 15.

Bernstein et al. discloses a test strip having three zones – a reaction zone, a sample zone, and a detection zone. Bernstein et al. fails to cure the inadequacies of Fitzpatrick et al. and Decker. It is therefore respectfully submitted that Bernstein cannot be said to provide suggestion or motivation to modify Fitzpatrick et al. and Decker et al. to meet the requirements of dependent claims 18, 19, and 24-26.

Accordingly, it is submitted that the claimed invention meets the test of patentability under 35 U.S.C. 103(a). Reconsideration of the rejection of the claims and withdrawal of the rejection is respectfully requested.

The claims as submitted herein are believed to be in condition for allowance, and allowance of the application is respectfully requested. In addition, it is requested that any fees due be charged to Deposit Account Number 50-0877 with reference to (BMID 9941 US).

Respectfully submitted,

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